

G3ZME
G6ZME

News Letter

TDARS

TELFORD AND DISTRICT AMATEUR RADIO SOCIETY

www.TDARS.org.uk

FOUNDED 1969

www.TelfordHamfest.co.uk

Issue 251

www.TDARS.org.uk

April 2012

www.telfordhamfest.co.uk

Programme

- April 18** *Using DF Hunt Equipment. Start Here ! Practice using TDARS kit.*
- April 25** *Treasure Hunt—in Little Wenlock (organiser Martin 2E0TRO). 7:30pm*
- May 2** *Committee Meeting, general and G3ZME on-the-air.*
- May 9** *Military Vehicles Demo. Village Field & The Huntsman Car Park*
- May 16** *2 metre walking DF Hunt. #1. Start Club HQ 7:30. Fox 2E0TRO. 144.600MHz*
- May 23** *Surplus Equipment Sale.*
- May 30** *Olympic Torch Event. Mini Olympics in Village Field. Surprise, surprise. Some laughs guaranteed. Lycra wear optional*
- June 2-3** *National HF Field Day at Peter 2E0ZSU's QTH (Whixall). G3JKX et al*
- June 6** *Committee Meeting 19:30. G3ZME on the HF/VHF bands*
- June 13** *"Summits on the Air" Guest speaker G8XYJ + 2E0CHV & 2E0CLR*
- June 17-18** *50 MHz Trophy from Long Mynd. 14:00 to 14:00 Contact Simon G0UFE*
- June 20** *VHF NFD and other portable Planning meeting*
- June 22-27** *GP3ZME/P expedition on Guernsey IN89QK. Contact Martyn G3UKV*
- June 27** *Second 2 metre walking DF hunt in LW. Start at TDARS HQ 7:30pm*
- July 4** *Committee meeting and station G3ZME on the Air*
- July 7-8** *VHF NFD from Long Mynd . Meet up usual site from 10:15am Saturday*
- July 11** *BBQ at LW Village Field (or nearby cover if wet). Contact G0EYX*
- For Amateur Radio Exam Training—enquiries to Mike G3JKX (01952 299677)*
For Morse Training and Morse Proficiency Tests Martyn G3UKV or Eric M0KZB.
For Equipment Loans & Returns contact Ricky M0RKY or Simon 2E0CHV

Radio Amateur Exams: Latest News: www.tdars.org.uk/html/trainingFoundation.html

VILLAGE HALL, MALTHOUSE BANK, LITTLE WENLOCK, TELFORD, SHROPSHIRE. TF6 5BG

Editorial

It was a very exciting moment in February to learn that we had won the West Midlands Club of the Year 2011 Award from the RSGB. We had to keep “mum” until it was confirmed by the Interim Board of the RSGB late in March, and in fact confirmation came in writing from the Acting General Manager himself—Don Beattie G3BJ—who actually lives in south Shropshire. Better still was the paragraph explaining that Telford & DARS was in the final top three within the whole range of UK RSGB Affiliated Societies, and that we would find out who was to be THE National Club-of-the-Year by attending the RSGB A.G.M. on Saturday April 20th at the Swan Hotel in Bedford. Six Members have said they hope to attend, which is most encouraging since the date clashes unfortunately with International Marconi Day, where the club is committed to putting GB8MD on-the-air from Tywyn in West Wales. Whilst the clash is unfortunate, it is hardly surprising since so many activities take place on a regular basis within TDARS—and not just on Wednesday meeting nights. We are a VERY active amateur radio society.



When Vaughan M0VRR (RSGB Regional Manager for W Midlands) came to our AGM to present the Award and Certificate, he explained that we had been runners-up in 2010, scoring just 3 marks less than Wythall who won it in both 2009 and 2010. How the scoring system works, I do not know—but hey—who cares ?! There were a number of wry smiles to learn that the Regional Shield had been presented by Radio World of Great Wyrley, who we hope will put on a stand at our HamFest in September.

So, it's a big pat-on-the-back to everyone who supports TDARS in any and every way. Whilst the Committee drew up the various sections of the application form and selected six eye-catching photographs for submission, it was the membership of the Society as a whole that won the day. Well done EVERYONE.

MIV

TELFORD & DISTRICT AMATEUR RADIO SOCIETY

CHAIRMAN: Derek Southey G0EYX (01785 604904)

VICE-CHAIRMAN: Martyn Vincent (01952 255416)

SECRETARY: Mike Street G3JKX (01952 299677)

TREASURER: Jim Wakenell G8UGL (01952 684173)

CURATOR : Ricky Brown M0RKY (01952 411793 or 07947 351980)

NEWSLETTER EDITOR: Martyn Vincent G3UKV (01952 255416)

PUBLICITY : Dave G0CER (01630 638699 or 07971 416940, leave msg)

Committee: Richard G0VXG; Simon G0UFE; Eric M0KZB; Martin 2E0TRO; Rob M0TOY; Peter 2E0ZSU;

Trophies/Certs: G3UKV & M1RKH. QSL Manager David M0PNN; Assist. Curator: Simon 2E0CHV (01588 674918)

Qtc: News & Information

TDARS MEETINGS EVERY WEDNESDAY AT LITTLE WENLOCK VILLAGE HALL UNLESS INDICATED OTHERWISE ON THE FRONT PAGE PROGRAMME.

ROOM BOOKED FROM 7PM - 10PM. MEETINGS USUALLY COMMENCE AT 8PM
Please return borrowed equipment promptly

~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+

Annual Subs are due at this time—please note the **current** rates are £28, or £22 non-earners, £14 full time students. These amounts were unchanged at the AGM. As usual, Jim holds the collection box.



Congratulations and **Welcome to Chris M6EGV** who joined us on the Sunday evening 144.600 MHz FM net, operating from the QTH of John 2E0CLR, just a few days after receiving his 'ticket'. Chris was one of 7 new Foundation exam successes locally this month. Excellent news.

On the subject of local nets, the **Sunday evening net** has varying support, but it has been pointed out it is not regularly printed in the Newsletter. So, it's Sunday evening at 9pm (or soon after, depending on Eric M0KZB's morse training session timings) on 144.600 MHz FM. Many club members also come on 80 metres on Monday and Friday mornings at 9am on the **"3657 KHz"** net, although this is an open-to-all net, and not particularly TDARS focused.

The AGM took place at the end of March, and a new committee picked up where the old one left off. That's sounds rather grand, but actually involved very few changes. Perhaps a case of not needing to fix something when it ain't broke! Richard G0VXG joined the committee after a few years absence, and the other Richard, M1RKH is taking a break after a long, and very busy involvement in committee affairs. He has already been co-opted to help in some areas of the HamFest organisation where his experience is invaluable.

The various Trophy presentations followed on from the AGM business, and were made by our guest visitor, **Vaughan Ravenscroft M0VRR**, who is our RSGB Regional Manager from Wednesfield. As well as presenting our own TDARS Trophies, he also formally presented the Midlands Club of the Year 2011 Award to Derek G0EYX, as you can see on page 2. Another milestone in the Society's annals for sure.



Photos by M0RJS & G3UKV

A wooden shield-shaped plaque with a central circular emblem and several small circular medallions arranged around it. The central emblem features a circular design with a central figure and text. The plaque is mounted on a blue fabric background.



~~~~~



## Report on the BARTG HF RTTY Contest: March 17-18.

By Dave G0CER

Well - I planned a six-hour entry starting Saturday morning - to catch the end of the LF and through to the afternoon to catch the top end of HF conditions, but it didn't end up like that.

Saturday am, static high on 80, 40 20. I could hear EU stations working each other, a clue that things weren't good. I thought I'd just get on with it and see how things improved (or not) through the day. It was after lunchtime before the Americans started coming in - with a few little gems like HZ1PS and JA6ZPR - I did move up to 15metres, which is a nice band - often very quiet but out of the hiss; dx stations pop-up to surprise you.

Saturday afternoon, slow plod. I took a 3 hour break (minimum in the rules) because I'd worked all I could hear and new stations just were not appearing. Later, 20 metres till 9pm - EU, US, Canadian and one PR7 station. I moved to LF much earlier move than usual - first 40m and then 80m (all EU). Again I felt I'd worked as much as possible and went QRT early for a HF contest.

Sunday seemed promising - 20m - EU and the US already in the morning and nice ones like E21YDP and YB1AR on 15metres. A short go on 10metres brought two stations - an EA8 who wasted ages arguing with me about me being G3Z (he really wanted me to add more letters!) and a PU2 Brazilian whom I tried ages to work - and not till the next day; notice that the exchange never got recorded - typical - why not ? The EA station. must be more careful.

Back to 20metres for the afternoon - calling CQ a few times and getting the odd short run. Nice to call CQ and get 9M6XRO call you back! The YB1 was worked again and DV1JM who was so loud I thought he was a German, not from the Philippines!

Late Sunday afternoon things fizzled out again - I went to 40m to top-up with PA and DL stations .. a quick re-visit of 20m got me FG1PP but really the end was just pushing the numbers up using 40m and 80m.

243 QSOs - at least one busted, but I'll put the log in and see how we get on. Hope that was of interest - A beam would have been better - getting up at 6am would have helped (though my LF antenna is not good). You live and learn. I'd recommend anyone else having a go at a long-HF digimode contest - they certainly help you understand the capabilities of your equipment, the radio conditions and how you get on doing this. Mine was an ongoing need to remember to set ALC levels when switching bands.

Some comments on the short call (G3Z).I can see its value on voice modes - but for digi-modes / CW, it strikes me that on those modes people tend to assume they might have missed a letter or two on any contact - so waste lots of time getting you to repeat your full call (4 re-sends at 10 tx's of g3z to more than one). It might not be a good choice for digimodes - someone else might comment on its use on CW.



[ Yes, true to some extent Dave on CW and even SSB. However, single letter calls are really very common on HF these days, so the sort of person who gets confused with them would probably get confused, or log errors, anyway. They're unlikely to ever make an entry, I suspect. – Martyn 'UKV]

P.S. Couldn't find a decent 21st. Century RTTY station picture on Google images to accompany this article. Hope this is close enough—Sorry Dave !!

~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+

## Mike's Piece

There's an Intermediate Course on at the moment *[well there was when Mike sent in this item! - Ed]* and the subject of fuses came up as it always does. Especially as to the value of fuse to use for a particular bit of kit. Every appliance has a plate which has to state the voltage and power for which it is designed. But what value fuse to use?

In case you don't know, the formula for working out the current that something takes is :-  
 $I \text{ (amps)} = \text{Power/Volts}.$

What must be remembered is that the wattage stated is the 'running' wattage. The starting wattage is larger, sometime much larger. Imagine a washing machine with the heater on and full of clothes and water. The current needed to start the motor is going to be much more than that when it is running. Obvious!

This must be taken into account when fitting the correct value of fuse in the plug-top. You might guess that in this case it will 13 Amps. But what about that electric lawn mower, with the lead missing that you found at a boot sale. You put a new flex on it, but what fuse to use. My mower has 230v AC @ 1000w on the panel. So the running current will be :  $1000W/230v =$  a bit more than 4 amps. Will a 5 amp fuse be OK? Probably not. Those lamp standards you have in the lounge with 60W bulbs in them: what fuse values are in those plug tops? I can guarantee they won't be 1 amp fuses which are actually needed for a running current of  $60/230$  or about 1/4 amp! A 1 amp fuse is available, (a bit big really) as are 2, 3, 5, 7, 10 & 13 amps., but for most of these you will have to go to an Electrical Wholesale outlet (there's plenty on Stafford Park) to find them. Price: 22p each!



You will certainly not find these in your local retailer Most only stock 5A and 13A fuses. Why? Because no one asks for anything else, so they don't stock them. ( B & M also stock 3A—Ed)The only things that need 13A are a 3 bar electric fire (does anyone use them these days?) and your washer/dryer. I leave it to your imagination to what happens if granny's hot water bottle leaks into an electric blanket which is on and has a 13 amp fuse in line. Having a 3 bar electric fire in bed with you is not very funny. I hope you can see why this subject is of great importance and needs to be understood by everyone, especially by older people. In case you wondered, my 1000W mower had a 13A fuse in the plug. It now has a 7A !

Another important subject is tools. Experienced craftsmen will tell you that they will only use the best tools. You get what you pay for. Well made tools will last longer, need less sharpening and, provided the XYL has not used the thing for a purpose it was not designed for, will last a long time. You all know what I mean. Wire cutters should show no daylight between the jaws when held up to the light. If there is light showing ....throw them out and get a decent pair. Screws have a great variety of head sizes and slot shapes. Have you got the necessary different ones to cope? Always use the correct one for the job. The wrong screwdriver can cause untold grief. NEVER use a metal screwdriver on anything inside a piece of radio equipment unless you are certain whatever it is, IS metal. Slugs inside coils are a case in point. Only use a plastic tool and only if the goo used to seal the slug in position has been removed/ melted/softened. Using quality drills is a must. Cheap ones will blunt quickly so you'll just have to get some new ones. You do wear eye protection when drilling, don't you? Look through your tools and get rid of those your grandfather's had (unless they are in A1 condition) Get family and friends to buy you quality ones for your birthday/Christmas presents. Better still, they give you some money to choose them for yourself.

**That's it for this time. Vy 73 Mike G3JKX**

~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+







Cans are first joined together in pairs, then two and two, then four and four. At this stage a simple jig (a piece of angle iron), is required to keep them in line. (left photo)

It is essential that the tins are painted to prevent them corroding as they become rusty quite quickly around the heated area, although a quick rub over with steel wool easily removes it.



The antenna is still 'ongoing'. At present I have constructed two lengths each 9ft 2in long. A method of rigidly joining each half together, to make it easier to transport, is in the process of being made and a suitable base has yet to be designed and constructed. Watch this space!



~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+

**THANKS to Simon 2E0CHV, Derek G0EYX, Bob M0RJS, Dave G0CER, Mike G3JKX, Ricky M0RKY for Newsletter input. Next publ. June 2012. Input in any format always welcome ! +**

~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+

**I make no apology for using this gap in the Newsletter for a 'plug' for the RSGB. They may not be perfect, but they are certainly trying to mend their ways and offer a top service to the listeners and radio amateurs of the U.K.**



## Join the RSGB

If you are not already an RSGB member you may not be aware of the large number of benefits our members enjoy beyond receiving QSL cards. RSGB Members can also send cards using the Bureau saving considerable sums each year on postage. Each month members also receive the one of the best amateur radio magazines in the world, RadCom. Only available to RSGB members it is posted monthly direct to your door, keeping you in touch with the amateur radio world. There are lots of other benefits too from discounted books through to our members' only website and much more besides.

## Try RSGB membership for FREE

If you sign up today to RSGB Membership and choose to pay by Direct Debit we will give you a free 3 month trial membership. You can take advantage of all of our membership services and if in three months you decide not to continue you can cancel and owe us nothing. You are safe in the knowledge that no money is taken until your trial is over and that all that we ask is that you let us know in writing 14 days before your first payment becomes due and we will cancel your membership.

Great benefits!

- ✓ RadCom
- ✓ QSL Bureau
- ✓ Book discounts
- ✓ RSGB Regional Team help
- ✓ Protection of your Hobby
- ✓ Members' Offers
- ✓ Members' only website
- ✓ RSGB Contests
- ✓ RSGB Awards
- ✓ Planning advice
- ✓ EMC advice
- ✓ Members' Ads
- ✓ IOTA Award Programme



Recently, I sent out an e-mail asking if any member would share their experience of ***“How I got into Amateur Radio”***.

This was an idea passed to me by Dave G8VZT. Any more for next issue ?

I only had one response—and that was the one below that Mike G3JKX sent me. Unfortunately Mike couldn't come up with a suitable photograph of himself in short trousers, or whatever he wore in his youth. (Before the war—but which one ?) -Ed.

“ It all started with a Medium Wave Crystal set I had built during the war. It had a real cat's whisker with a lump of Galena as a detector. I still have the SG Brown headphones.

One day when I came home from school, my Mum said she had dusted my set! I went upstairs to find the coil, which was wound on a toilet roll inner had sprung off the former and was mostly on the floor. The adhesive tape I had used to stick the windings had given up the job.

What was even more surprising was that a very loud voice was emanating from the headphones saying 'G3EFP this is G8VB over'. I did not hear any reply but a minute or two later 'G3EFP this is G8VB', and a strange conversation ensued about antennas and modulation and conditions and many words I did not understand.

Intrigued, I thought that these signals must have come from somewhere very nearby and set off on my delivery bike to find this station which had got to have a big aerial I thought.

It took several days of looking, but find the house I did, with a tower in the back garden and knocked on the door.

'Are you G8VB ?' I said to the man who answered.

'Come in', he said, pulling me in by the arm.

Well his radio 'shack' was his back room filled with tall racks and panels with lots of lights and dials. He wanted to know how I had found about him, so I explained.

He told me then about Amateur Radio and what I had to do to get a licence. He then proceeded to call up G3EFP for long chat. I was hooked.

That is why I joined the RAF at just turned 15 to be an apprentice radio technician so I could get a Ham licence.

On arriving at RAF Cranwell, Lincs, there was G8FC, the RAFARS HQ station with a huge ( I thought) rotary beam on the roof of the hut. I practically lived in the place when off duty and I know that I learnt more about radio there than at the Radio School. A group of us asked to have an Apprentices Radio Club and duly G3IDZ eventually appeared on the bands. The school moved to RAF Locking in 1953.

I did not have to take the Radio Amateurs Exam as my training in the RAF exempted me.

Neither did I go to the local Coastal Station (as was usual) to take the mandatory Morse Test either. RAF Locking had a Morse School run by a man who could send two different messages with his two hands at the same time. He never told me that I had passed the morse test at over 12 words per minute and I do not remember paying my first licence fee either. (15s)

I had made a 6V6 VFO/6L6 PA TX (in a TU5B chassis) and used an ex RAF 1155 Rx from which I had extracted all the DF guts and fitted a 6V6 output valve to drive a loudspeaker and an internal PSU. I thought it was the bees knees. I made the BFO variable with its control on the front panel which made tuning CW easier. That was all 60 years ago. And I still love it.

**Vy 73 Mike G3JKX**

PS. I wish I still had that 1155 Rx !

~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+

## **Special Event Stations and GX3ZME** — by Simon 2E0CHV

I am sitting here on Friday 13<sup>th</sup> April, just a week before the advanced party set off to Tywyn to set up GB8MD in readiness for International Marconi Day on 21<sup>st</sup> April. I would like to thank all those who have volunteered their time over the weekend; let's hope that conditions on HF have improved on last year and more importantly we do not see a return of the high winds which plagued last year's effort. I shall endeavour to write a full report for the next Newsletter. For those of you in the club who are not keen on contesting, or just want to try something different, special event stations are a great opportunity to operate a busy station, hopefully with large volumes of stations trying to work you. TDARS members have several special event stations planned throughout 2012 and I would encourage as many of you as possible to get involved if you have the time!

### **Wednesday 30<sup>th</sup> May GX3ZME/P**

On the 30<sup>th</sup> May, the Olympic Torch will be winding its way through Shropshire, including Much Wenlock. To celebrate this fact TDARS are planning an evening of activity on the playing field in Little Wenlock. I am also planning to operate the club call sign GX3ZME on the field from mid-day. I know this is a work day, but for those of you who are able, it would be great to see some of you in the afternoon for some relaxed operating.

### **Sunday July 8<sup>th</sup> GX6ZME/P Lions Day on Wheels.** Bowring Park Recreation Ground Wellington.

John 2E0CLR is planning to operate the club call GX6ZME/P at this event in order to publicise TDARS. This event clashes with VHF National Field Day, which is using the other club call. For those of you not taking part in VHF NFD, I would urge you to offer John a helping hand with what could be a great recruitment event for TDARS.

### **10<sup>th</sup> – 12<sup>th</sup> August. GB0WPB Much Wenlock**

For the second year running, we are planning to operate GB0WPB (William Penny Brookes) from Much Wenlock Scout Hut. This is to commemorate the life of Dr Brookes and Much Wenlock's Olympic connection. This event coincides with the last weekend of London 2012 Olympics, so there will be many stations wishing to work a special station celebrating the birth place of the modern day Olympic Games!

### **12<sup>th</sup> – 14<sup>th</sup> October. Jamboree on the Air**

Last year TDARS members organised and supported two JOTA stations, in Wolverhampton and for Ludlow Scout Group. I am sure that both stations will be on the air again in 2012!

These are the current special event stations being organised by TDARS members, but if anyone fancies organising another station or event, then I would love to hear from you!

### **GX3ZME on the Air. First Wednesday of every month 19:45 – 21:30**

John 2E0CLR and I have tried to put both the HF and VHF station on the air for the last couple of months. I would like to thank those club members who have joined us on the air and would like to encourage as many of you as possible to check in on either:-

HF: 3.657 +/- QRM SSB

>>>>>>>>>>>>

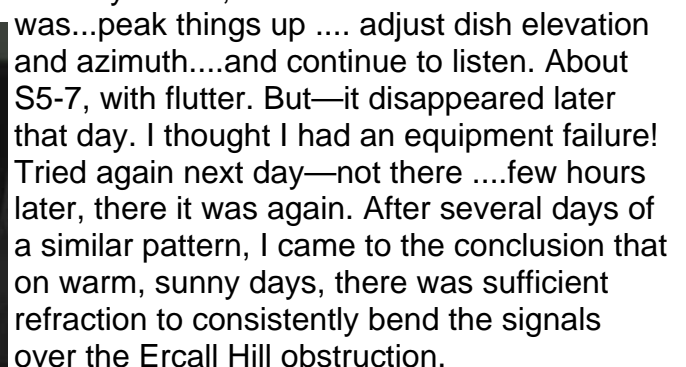


Alternatively, why not turn up at Little Wenlock and operate the club station, I am sure most members of the amateur fraternity are fed up of the sound of my voice by now!

Simon 2E0CHV  
01588 673053 or 07807 306699, or [m3set@yahoo.co.uk](mailto:m3set@yahoo.co.uk)

20th June 2001 saw one of the first 24 GHz microwave beacon stations in the UK (and Europe) come on air, from our old Dawley Bank site on 24192.910 MHz (also known as the 12mm band). It radiated 1 watt from a 40 slot waveguide antenna. In 2004, we were asked to change frequency along with all other UK 24GHz stations to the new band-plan frequency of 24048.910 MHz. This took place on 26th May 2004. In Feb.'08 it was moved to Little Wenlock. Since 2001, apart from short periods of servicing, it has kept going until last autumn, when the crystal (which had long term drift LF) finally stopped oscillating. The exact date is not known. A new crystal was bought from Germany, (Eisch co.) and Jim G8UGL built up an improved TCXO (temp. controlled crystal oscillator). With a bit of help from myself, G8ACE and G8VZT, this was put back on air on 14th March 2012, and its frequency was within about 5 KHz of the nominal. (not bad for a target frequency of just over 24 million KHz !)

I set up my tripod, dish and 24GHz gear at the front of my house, and tuned around. There it



Now, I have come across a similar diurnal pattern of refraction over sea paths at 10 GHz, sometimes called ducting, from portable sites in Eire, Scotland, Is of Man and Guernsey—but never on over-land paths, and

I've always found propagation interesting at any and every frequency we have at our disposal. Microwave beacons are a fascinating source of propagation investigation, available at all times.

~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+~+



I generally avoid “lifting” articles from other magazines. However, these 2 items came from the American magazine QST, and the first one in particular looks very interesting and practical. We all have odd toroids lying about which are impossible to identify, and therefore avoid using. This is a simple way of measuring their resonant frequency for a given number of turns. Similarly, a GDO could be used in the same way as the MFJ antenna analyzer shown.

### CHECKING TOROIDS

◊I needed to remove some HF band noise that was radiating from my furnace’s thermostat wires. When the furnace was on, the noise floor would rise about 10 dB as viewed on an RFSpace SDR-IQ receiver — an unacceptable situation. In my “might-need-it” garage, I found a bunch of random toroids that were the right size to make chokes.

None of the toroids were marked or color coded. Winding chokes and testing them would be a pain because there are about 10 wires in the two thermostat lines and it would be very hard to determine which chokes were effective.

Then I thought: “How about using an antenna analyzer to evaluate the toroids?” I have a MFJ-259, which is a good HF signal source. If one places a 51  $\Omega$  resistor across the output, the meter will read 1:1 and 50 ohms [remember to set the analyzer’s frequency band to the one you are trying to block — Ed.]. That’s good. Now put a 1 foot piece of wire across the resistor and the SWR goes infinite and the resistance goes to zero.

Now make the wire disappear. Thread a few of the same looking toroids on the wire and put the wire across the resistor. [When working with toroids remember that while different toroids may look alike, their electrical behavior depends on the composition of the toroidal material and can vary widely. When testing, test individual toroids singly before attempting to combine them. — Ed.] What happens? If the analyzer shows 50  $\Omega$  and 1:1 SWR, you have found the toroids that will “choke” the signal at the frequency of the analyzer. Go up and down the HF band to see how effective the toroids will be on the frequencies you are concerned about. Next, wind a few turns of wire through one of the “good” ones and do the same test. If it shows 1:1, the toroid will work.

This method quickly identifies toroids that would be effective at blocking the

Figure 3 — This is the test fixture that Allen, KC7O, designed to check the spectrum blocking ability of some unknown toroids.



desired frequencies. It will not tell you the power handling capability of the toroid, just its ability to prevent RF from passing.

I made a simple fixture to attach to the MFJ analyzer to do the measurements (see Figure 3). The parts needed are a PL-259 connector, two alligator clips, a 51  $\Omega$  carbon resistor (any noninductive resistor around 50  $\Omega$  will do) and an insulated support for all the parts. I also added a normally open pushbutton switch to place a short across the resistor to verify that RF is present, but it’s not necessary. — 73, Allen Wolff, KC7O, 57 West Grandview Ave, Sierra Madre, CA 91024, kc7o@arri.net

### AT-CONNECTOR L-MATCH

◊It is well known that the low radiation resistance of a shortened vertical antenna

means it will not be a good match for 50  $\Omega$  coax unless some kind of matching network is used. Fortunately, an L-match circuit is easy to make by shunting a capacitor or an inductor to ground at the antenna feed point.

I use helically wound Hamstick-type antennas for HF mobile. The L-match is a good way to get a match to the coax. I was inspired by a QST article by Phil Salas, AD5X, that described a mobile mount with switchable capacitors.<sup>2</sup> I wanted something quicker and easier than the elegant AD5X method.

My solution is to use a base mount with an SO-239 connector opposite the antenna stud end. Instead of connecting the coax directly to the mount I attach a coax T-connector. On one side of the connector I connect the coax from the transceiver. On the other side I connect a coax plug with a fixed capacitor attached. I prepared plugs with capacitors for the bands I expected to operate. Figure 4 shows how this works. I use cut-down crimp-type connectors for the capacitor plugs.

It is easy to experiment with different capacitor values using alligator clips and a banana plug. In this way I determined that 400 pF made for a good match for 40 meters and that 150 pF worked well for my 20 meter antenna. Experiments indicated I had satisfactory matches on 15 and 10 meters with no shunt capacitor, but I may revisit this when I start to operate more on the higher bands.

Weatherproofing is a concern for any outdoor antenna, mobile or fixed. I coat the capacitor and the body of its plug with a weatherproof material like so-called liquid electrical tape or I wind a generous length of ordinary electrical tape over it. When I want to operate without a capacitor I put a weatherproof cap on the open end of the T-connector. Rubber furniture feet from the hardware store work well for this. — 73, Al Woodhull, N1AW, 199 Eden Tr, Leyden, MA 01337-9580, nlaw@arri.net

<sup>2</sup>P. Salas, AD5X, “A Mobile Antenna Base with Internal Capacitive Matching,” QST, Feb 2004, pp 43-46.

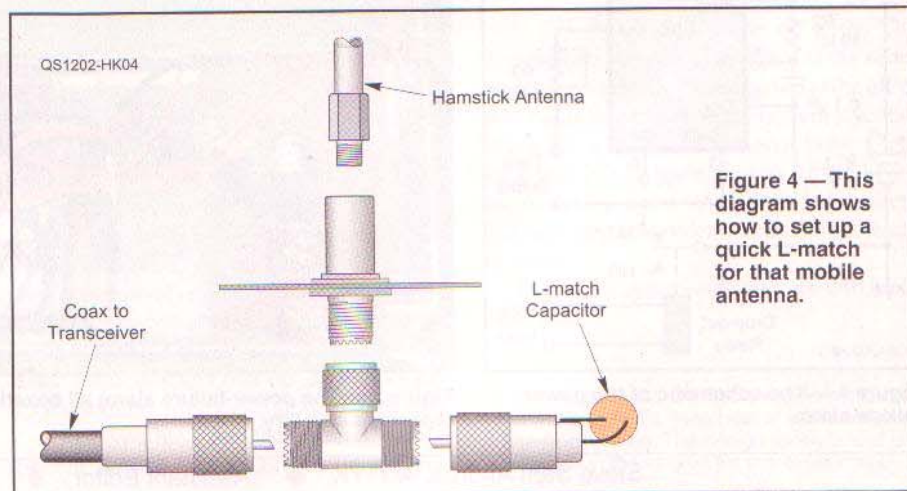


Figure 4 — This diagram shows how to set up a quick L-match for that mobile antenna.